HYGIENETECH
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February 1, 2008 (Emailed February 4, 2008)

State of California
Board of Equalization
450 N Street
Sacramento, California 94279

Document No. 20801001

Attention: Ramon J. Hirsig

Regarding: Mold Spore Counts BOE Building, 10th Floor

Dear Mr. Hirsig:

On January 24, 2008, Hygiene Technologies International, Inc. (HygieneTech) industrial hygienists performed mold growth and exposure assessment surveys in and near the 10th Floor Break Room, No. 1004, at the Board of Equalization building located at the above address. As you know, at sometime prior to the survey, a water loss occurred affecting that area of the building and, therefore, the primary purpose of the surveys was to characterize the mold spore exposure potentials for building occupants in the vicinity of that Break Room.

At the time, air samples were collected at varying 10th Floor locations, including within the subject Break Room, for total (viable and nonviable) fungi analyses using a Zefon brand Bio-Pump™ equipped with Allergenco-D™ cassettes. An additional air sample was collected outdoors for comparison purposes. Each was later analyzed for fungi (including yeasts, molds, rusts, smuts, and mushrooms) by trained and experienced microbiologists at a laboratory accredited by the American Industrial Hygiene Association (AIHA) and that successfully participates in the AIHA Environmental Microbiology Proficiency Analytical Testing (EMPAT) Program. The analytical data with supporting and background information appear in Table 20801001, which is enclosed.

The analytical results showed that common spore types, such as ascospores, basidiospores, *Botrytis, Cladosporium*, colorless spores typical of *Penicillium* and *Aspergillus* species, and smuts, were found outdoors. All types of fungi found outdoors were consistent with those found at the site in the past, and all data were found within expected ranges. In the building interior on the 10th Floor, HygieneTech recorded data that were unremarkable. At the various locations, basidiospores, *Bipolaris/Drechslera* group molds, *Cladosporium*, and colorless spores typical of *Penicillium* and *Aspergillus* species were found; all at low levels that were within expectations in buildings having typical indoor air quality.

Note, though, that at the time of the survey, HygieneTech observed that some efforts to dehumidify the Break Room area were ongoing. Specifically, vinyl cove base molding had been removed from walls, and at two different locations, suspect mold growth was seen within the exposed wall cavities. HygieneTech recommended to DGS that the cove base be immediately re-sealed to the wall and, given

that all supply and return air registers were open, HygieneTech recommended that registers be sealed with 6-mil polyethylene plastic sheeting in order to limit the potential for dispersion of spores to other areas of the building. In addition, HygieneTech recommended that no further dehumidification take place involving any demolition unless the area was isolated and placeed under negative air pressure; that an assessment to determine mold growth potentials be performed; and that the area be marked "closed" to BOE employees.

In the late afternoon hours of January 28, 2008, Kenny K. Hsi, CIH with HygieneTech, toured the 10th Floor and discovered that some of the vinyl baseboards had been removed at several locations in and around the Break Room 1004. Several "drying holes" were created at lower wall surfaces inside the Break Room and no polyethylene sheeting was observed at the supply and return air registers. Two air filtration blowers were observed within that room, although neither was active at the time. Additionally, some evidence was seen suggesting that the Break Room had been used since the last inspection by HygieneTech. Mr. Hsi attempted to contact DGS by telephone about this matter, and since he was unable to speak to someone directly, he left a voicemail message.

HygieneTech returned to the 10th Floor and proceeded to collect additional airborne spore trap samples during the morning of January 29, 2008. Those samples were collected and analyzed in manners identical to those samples collected during the previous week, and as shown in the enclosed Table 20801001-3, HygieneTech recorded elevated levels of airborne spores inside the Break Room and an above-background level in one of the hallway locations. HygieneTech provided appropriate notifications concerning these results to DGS by electronic and telephonic means.

HygieneTech was informed that DGS or their representative collected one or more air samples within the subject Break Room during the late afternoon hours on January 29, 2008, with results showing unremarkable data. Be advised that while those data showed vastly improved indoor air quality within that immediate vicinity, the data strongly suggest that *Stachybotrys* spores, which were found at a level of approximately 10,700 spores per cubic meter in the morning of that day, had been diluted and dispersed through the HVAC system, which was active in that area of the building.

Be advised also that while I cannot state with certainty that the data suggest that widespread exposure to *Stachybotrys*, *Penicillium* and/or *Aspergillus*, or all three genera, may have posed a health hazard to building occupants outside of the subject Break Room at anytime during or following the water intrusion event, I can say with confidence that the exposure potentials to airborne mold spores was significantly above-background within that Break Room during all times represented by the HygieneTech air sample collected on January 29, 2008, and I can say that a *potential* overexposure may have occurred involving other building occupants at varying times. The most probable signs and symptoms of exposure are expected to be limited to hay fever-like effects and therefore BOE supervision and management should react appropriately if employees register such complaints. Given that such exposures may have occurred involving some BOE employees at sometime, notification of the health hazards associated with exposures to airborne mold spores is required to be given to those potentially so exposed. Such warning, which is required under the "general duty clause" and should be provided immediately, should be made consistent with the State of California, Department of Industrial Relations, Division of Occupational Safety and Health (Cal-OSHA) and Federal OSHA hazard communication standards.

As you know, earlier in the week, HygieneTech recommended to you, David Gau and Christopher Workman, Esq. that additional assessment surveys be performed on the 10th Floor and other floor levels, including at various locations on the 9th and 11th Floors, in order to characterize exposure potentials. I suggested that both spore trap and viable spore air samples be taken and, after receiving authorization

to proceed, HygieneTech began providing that service. Kenny Hsi, CIH will be in touch with more information concerning those data as soon as they are available.

Also, as I indicated when we last spoke by telephone, the degree of airborne *Stachybotrys* in the subject Break Room undoubtedly indicates 1) that mold growth in the area predated the water loss that reportedly occurred on or about January 13, 2008; and 2) that a disturbance of one or more surfaces harboring mold growth involving that genus occurred in the vicinity of the sample collection site showing above-background results. Note that those data are expected to represent conditions and activities consistent with those described to you and David Gau; namely, that mold growth-contaminated wall cavities in the Break Room were pressurized such that air streams were forced out of aeration holes that were intentionally made at the low portions of walls that harbored mold growth. Be advised that such an activity falls far below the standard of care in the abatement industry and, in fact, is not recommended under circumstances when a water loss occurs involving one or more cavity surfaces that harbors mold growth due to a previous water exposure.

Based on my experience, when such inappropriate action is taken, particularly when such action is expected to be perceived as *abatement* by the individuals performing such work, less than fully effective communication between maintenance upper management and the labor force is usually a factor. I would expect that, regarding the subject Break Room, this was the case in the BOE building, in combination with a labor force that was unaware of proper abatement procedures. And, given that these circumstances occurred in a building that has had a reputation of having long-term water intrusion and that the building occupants, along with various unions, management members, consultants, Cal-OSHA representatives, and outside media entities such as the Sacramento Bee, have treated comparable situations in the BOE building with varying degrees of alarm, I strongly recommend that DGS is asked to stand down concerning all abatement activities until clear and appropriate remediation protocols have been developed regarding each such matter by a qualified individual and all related work is approved by DGS and BOE, and/or their representatives. On behalf of Kenny Hsi, CIH and our entire staff in the BOE building, we are eager to assist in anyway that we can.

Note also that any recommendation regarding this matter that was previously offered by HygieneTech, whether offered orally or in writing, may still apply, based on the conditions that existed when such advice was provided and that may exist now.

If you have any comments or questions regarding the information contained in this correspondence, please feel free to contact me directly at (310) 370-8370.

Sincerely,

**HYGIENE TECHNOLOGIES INTERNATIONAL, INC.**

Brian P. Daly

Brian P. Daly, CIH, PE
President

# HYGIENE TECHNOLOGIES INTERNATIONAL, INC.

# APPENDIX A

CLIENT: California State Board of Equalization
450 N Street
Sacramento, California 94279

## TABLE 20801001-1
## AIRBORNE TOTAL FUNGI RESULTS
## 10TH FLOOR
## SACRAMENTO, CALIFORNIA
## JANUARY 24, 2008



**Results reported in spores per cubic meter of air (spores/M$^3$)**

| SAMPLE NUMBER | 20801001-TM01OUT | 20801001-TM09WF | 20801001-TM10WF | 20801001-TM11WF |
|---|---|---|---|---|
| SAMPLING LOCATION/ACTIVITIES | Outdoors: about 20 feet west of nursery entrance door; approximately five feet above floor/Normal outdoor activities | Room 1004; About center; approximately five feet above floor/Sampling activities only | Room 1002; break room; about center; approximately five feet above floor/Sampling activities only | Room 1014; between; room 1003 and hallway; approximately five feet above floor/Normal sampling activities |
| START/STOP | 10:56:00/11:01:00 | 13:56:00/14:01:00 | 14:04:00/14:09:00 | 14:12:00/14:17:00 |
| SAMPLE TIME | 5 minutes | 5 minutes | 5 minutes | 5 minutes |
| Alternaria | | | | |
| Arthrinium | | | | |
| Ascospores | 1,070 | | | |
| Aureobasidium | | | | |
| Basidiospores | 1,440 | | 53 | 53 |
| Bipolaris/Drechslera group | | 13 | | |
| Botrytis | 13 | | | |
| Chaetomium | | | | |
| Cladosporium | 533 | 53 | 53 | |
| Curvularia | | | | |
| Epicoccum | | | | |
| Nigrospora | | | | |
| Oidium | | | | |
| Penicillium/Aspergillus types | 107 | 53 | 107 | 107 |
| Pithomyces | | | | |
| Rusts | | | | |
| Smuts (Periconia, Myxomycetes) | 13 | | | |
| Stachybotrys | | | | |
| Stemphylium | | | | |
| Torula | | | | |
| Ulocladium | | | | |
| Hyphal fragments | 27 | 27 | <13 | <13 |
| Background particulates* | 1+ | 2+ | 2+ | 2+ |
| TOTAL** | 3,176 | 159 | 213 | 160 |

Background debris is an indication of the amount of non-biological particulate matter present on the slide and is graded (from least to greatest) as 1+ to 4+.

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## TABLE 20801001-1
## AIRBORNE TOTAL FUNGI RESULTS
## 10TH FLOOR
## SACRAMENTO, CALIFORNIA
## JANUARY 24, 2008



**Results reported in spores per cubic meter of air (spores/$M^3$)**

| SAMPLE NUMBER | 20801001-TM12WF | 20801001-TM13WF | 20801001TM08OUTWF | |
|---|---|---|---|---|
| SAMPLING LOCATION/ACTIVITIES | Western hallway; about center; approximately five feet above floor/Normal sampling activities only | Northern hallway; about five feet northeast of stairway exit; approximately five feet above floor/Normal office activities | Outdoors; about twenty feet west of nursery entrance door; approximately five feet above ground/Normal outdoor activities | This column intentionally left blank |
| START/STOP | 14:20:00/14:25:00 | 14:26:00/14:31:00 | 12:02:00/12:07:00 | |
| SAMPLE TIME | 5 minutes | 5 minutes | 5 minutes | |
| Alternaria | | | | |
| Arthrinium | | | | |
| Ascospores | | | 587 | |
| Aureobasidium | | | | |
| Basidiospores | 107 | | 1,170 | |
| Bipolaris/Drechslera group | | | | |
| Botrytis | | | | |
| Chaetomium | | | | |
| Cladosporium | | 53 | 320 | |
| Curvularia | | | | |
| Epicoccum | | | | |
| Myrothecium | | | | |
| Nigrospora | | | | |
| Oidium | | | | |
| Other brown | | | | |
| Penicillium/Aspergillus types | | 160 | 53 | |
| Pithomyces | | | | |
| Rusts | | | | |
| Smuts (Periconia, Myxomycetes) | 13 | | | |
| Stachybotrys | | | | |
| Torula | | | | |
| Ulocladium | | | | |
| Hyphal fragments | <13 | <13 | 40 | |
| Background particulates* | 2+ | 2+ | 1+ | |
| TOTAL** | 120 | 213 | 2,130 | |

Background debris is an indication of the amount of non-biological particulate matter present on the slide and is graded (from least to greatest) as 1+ to 4+.

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# APPENDIX A

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## TABLE 20801001-3
## SURFACE FUNGAL GROWTH POTENTIALS
## 10TH FLOOR
## SACRAMENTO, CALIFORNIA
## JANUARY 24, 2008

| SAMPLE NUMBER | SAMPLING LOCATION | AMORPHOUS DEBRIS | MISCELLANEOUS FUNGI/POLLEN* | FUNGI SEEN WITH UNDERLYING MYCELIAL AND/OR SPORULATING STRUCTURES** | OTHER COMMENTS | GENERAL IMPRESSION |
|---|---|---|---|---|---|---|
| 20801001-TL201WF | Room 1004; southern partition wall; about center; approximately two inches above floor; from vertical surface of gypsum board | Light | Very few | 2+ *Aspergillus* species (spores,hyphae, conidiophores) 1+ *Ulocladium* species(spores, hyphae, conidiophores) <1+*Chaetomium* species (ascospores, ascomata,hyphae) | None | Fungal growth |
| 20801001-TL202WF | Room 1002; western partition wall contiguous with room 1003; about center; approximately two inches above floor; from vertical surface of gypsum board | Heavy | Very few | 3+ *Stachybotrys* species (spores, hyphae, conidiophores) <1+ *Aspergillus* species (spores, hyphae, conidiophores | None | Fungal growth |

*Includes basidiospores (mushroom spores), myxomycetes, plant pathogens such as ascospores, rusts and smuts, and a mix of saprophytic genera with no particular spore type predominating (indicative of normal trapping).

**Quantities of fungi are graded (from least to greatest) as <1+ to 4+.

# HYGIENE TECHNOLOGIES INTERNATIONAL, INC.

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# APPENDIX A

## TABLE 20801001-3
## AIRBORNE TOTAL FUNGI RESULTS
## 10TH FLOOR
## SACRAMENTO, CALIFORNIA
## JANUARY 29, 2008



**Results reported in spores per cubic meter of air (spores/$M^3$)**

| SAMPLE NUMBER | 20801001-TM301OUTWF | 20801001-TM01JL | 20801001-TM02JL | 20801001-TM03JL |
|---|---|---|---|---|
| SAMPLING LOCATION/ACTIVITIES | Outdoors; parking lot; roof, about 100 feet west of building ; approximately five feet above deck/Normal outdoor activities | Break Room 1004; about center; approximately five feet above floor/Sampling activities only | Northern hallway; about three feet north of stairwell exit; approximately five feet above floor/Normal office activities | Room 1014; hallway; about six feet north of Room 1003; approximately five feet above floor/Normal office activities |
| START/STOP | 09:01:00/09:06:00 | 09:16:00/09:21:00 | 09:33:00/09:38:00 | 09:40:00/09:45:00 |
| SAMPLE TIME | 5 minutes | 5 minutes | 5 minutes | 5 minutes |
| Alternaria | | | | |
| Arthrinium | | | | |
| Ascospores | 907 | | | |
| Aureobasidium | | | | |
| Basidiospores | 3,040 | 213 | 107 | 53 |
| Bipolaris/Drechslera group | | | | |
| Botrytis | | | | |
| Chaetomium | | 240 | | |
| Cladosporium | 427 | | | |
| Curvularia | | | | |
| Epicoccum | 13 | | | |
| Nigrospora | | | | |
| Oidium | | | | |
| Penicillium/Aspergillus types | 107 | 5,830 | 53 | 107 |
| Pithomyces | | | | |
| Rusts | | | | |
| Smuts (Periconia, Myxomycetes) | | 13 | | |
| Stachybotrys | | 10,700 | 67 | |
| Stemphylium | | | | |
| Torula | | | | |
| Ulocladium | | | | |
| Hyphal fragments | <13 | 213 | <13 | 13 |
| Background particulates* | 2+ | 2+ | 2+ | 2+ |
| TOTAL** | 4,494 | 16,996 | 227 | 160 |

Background debris is an indication of the amount of non-biological particulate matter present on the slide and is graded (from least to greatest) as 1+ to 4+.

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# APPENDIX A

## TABLE 20801001-3
## AIRBORNE TOTAL FUNGI RESULTS
## 10TH FLOOR
## SACRAMENTO, CALIFORNIA
## JANUARY 29, 2008



**Results reported in spores per cubic meter of air (spores/$M^3$)**

| SAMPLE NUMBER | 20801001-TM04JL | 20801001-TM05JL | 20801001-TM06JL | 20801001-TM015OUTJL |
|---|---|---|---|---|
| SAMPLING LOCATION/ACTIVITIES | Room 1003; about center; approximately five feet above floor/Normal office activities | Western hallway; about three feet east of room 1002; approximately five feet above floor/Sampling activities only | Room 1002; about center; approximately five feet above floor/Sampling activities only | Outdoors; about thirty feet east of building; approximately five feet above deck/Normal outdoor activities |
| START/STOP | 09:49:00/09:54:00 | 09:56:00/10:01:00 | 13:01:00/13:06:00 | 13:16:00/13:21:00 |
| SAMPLE TIME | 5 minutes | 5 minutes | 5 minutes | 5 minutes |
| Alternaria | | | | |
| Arthrinium | | | | |
| Ascospores | | | | 213 |
| Aureobasidium | | | | |
| Basidiospores | 160 | 53 | 160 | 1,070 |
| Bipolaris/Drechslera group | | | | |
| Botrytis | | | | |
| Chaetomium | | | | |
| Cladosporium | 53 | 53 | | 53 |
| Curvularia | | | | |
| Epicoccum | | | | |
| Myrothecium | | | | |
| Nigrospora | | | | |
| Oidium | | | | |
| Other brown | | | | |
| Penicillium/Aspergillus types | 160 | 1,000 | | 267 |
| Pithomyces | | | | |
| Rusts | | | | |
| Smuts (Periconia, Myxomycetes) | | | | |
| Stachybotrys | | | | |
| Torula | | | | |
| Ulocladium | | | | |
| Hyphal fragments | 27 | 13 | <13 | <13 |
| Background particulates* | 2+ | 2+ | 2+ | 1+ |
| TOTAL** | 373 | 1,106 | 160 | 1,603 |

Background debris is an indication of the amount of non-biological particulate matter present on the slide and is graded (from least to greatest) as 1+ to 4+.

# HYGIENE TECHNOLOGIES INTERNATIONAL, INC.

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Sacramento, California 94279

# APPENDIX A

## TABLE 20801001-33
## AIRBORNE TOTAL FUNGI RESULTS
## 10TH FLOOR
## SACRAMENTO, CALIFORNIA
## JANUARY 30, 2008



**Results reported in spores per cubic meter of air (spores/$M^3$)**

| SAMPLE NUMBER | 20801001-TM401OUTWF | 20801001-TM402WF | 20801001-TM403WF | 20801001-TM404WF |
|---|---|---|---|---|
| SAMPLING LOCATION/ACTIVITIES | Outdoors; about 100 feet east of building; approximately five feet above ground/Normal outdoor activities | Northern hallway; about three feet north of northwestern stairwell entrance; approximately five feet above floor/Sampling activities only | Western hallway; about three feet east of Conference Room 1002; approximately five feet above floor/Sampling activities only | Break Room 1004; about center; approximately five feet above floor/Sampling activities only |
| START/STOP | 05:16:00/05:21:00 | 5:43:00/5:48:00 | 5:48:00/5:53:00 | 6:02:00/6:07:00 |
| SAMPLE TIME | 5 minutes | 5 minutes | 5 minutes | 5 minutes |
| Alternaria | | | | 13 |
| Arthrinium | | | | |
| Ascospores | 320 | | | |
| Aureobasidium | | | | |
| Basidiospores | 853 | 53 | 160 | 160 |
| Bipolaris/Drechslera group | | | | |
| Botrytis | | | | |
| Chaetomium | | | | |
| Cladosporium | 107 | | | |
| Curvularia | | | | |
| Epicoccum | | | | |
| Nigrospora | 13 | | | |
| Oidium | | | | |
| Penicillium/Aspergillus types | | | 53 | 53 |
| Pithomyces | | | | |
| Rusts | | | | |
| Smuts (Periconia, Myxomycetes) | | | | 13 |
| Stachybotrys | | | | |
| Stemphylium | | | | |
| Torula | | | | |
| Ulocladium | | | | |
| Hyphal fragments | 40 | 13 | <13 | <13 |
| Background particulates* | 2+ | 2+ | 2+ | 2+ |
| TOTAL** | 1,293 | 53 | 213 | 239 |

Background debris is an indication of the amount of non-biological particulate matter present on the slide and is graded (from least to greatest) as 1+ to 4+.

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450 N Street
Sacramento, California 94279

# APPENDIX A

## TABLE 20801001-33
## AIRBORNE TOTAL FUNGI RESULTS
## 10TH FLOOR
## SACRAMENTO, CALIFORNIA
## JANUARY 30, 2008

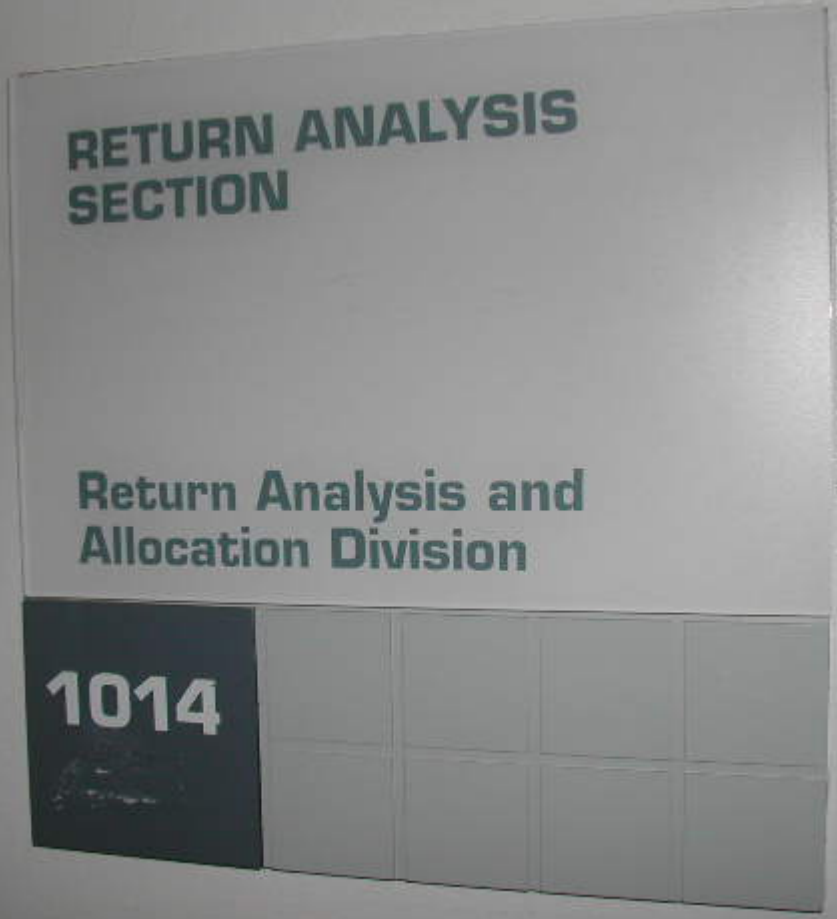


**Results reported in spores per cubic meter of air (spores/$M^3$)**

| SAMPLE NUMBER | 20801001-TM405OUTWF | | | |
|---|---|---|---|---|
| SAMPLING LOCATION/ACTIVITIES | Outdoors; about 100 feet east of building; approximately five feet above ground/Normal outdoor activities | | | |
| START/STOP | 6:15:00/6:20:00 | | | |
| SAMPLE TIME | 5 minutes | | | |
| Alternaria | | | | |
| Arthrinium | | | | |
| Ascospores | 267 | | | |
| Aureobasidium | | | | |
| Basidiospores | 1,230 | | | |
| Bipolaris/Drechslera group | | | | |
| Botrytis | 13 | | | |
| Chaetomium | | | | |
| Cladosporium | 160 | | | |
| Curvularia | | | | |
| Epicoccum | | | | |
| Myrothecium | | | | |
| Nigrospora | | | | |
| Oidium | | | | |
| Other brown | | | | |
| Penicillium/Aspergillus types | | | | |
| Pithomyces | | | | |
| Rusts | | | | |
| Smuts (Periconia, Myxomycetes) | | | | |
| Stachybotrys | | | | |
| Torula | | | | |
| Ulocladium | | | | |
| Hyphal fragments | 13 | | | |
| Background particulates* | 2+ | | | |
| TOTAL** | 1,670 | | | |

Background debris is an indication of the amount of non-biological particulate matter present on the slide and is graded (from least to greatest) as 1+ to 4+.


BREAK
ROOM
1004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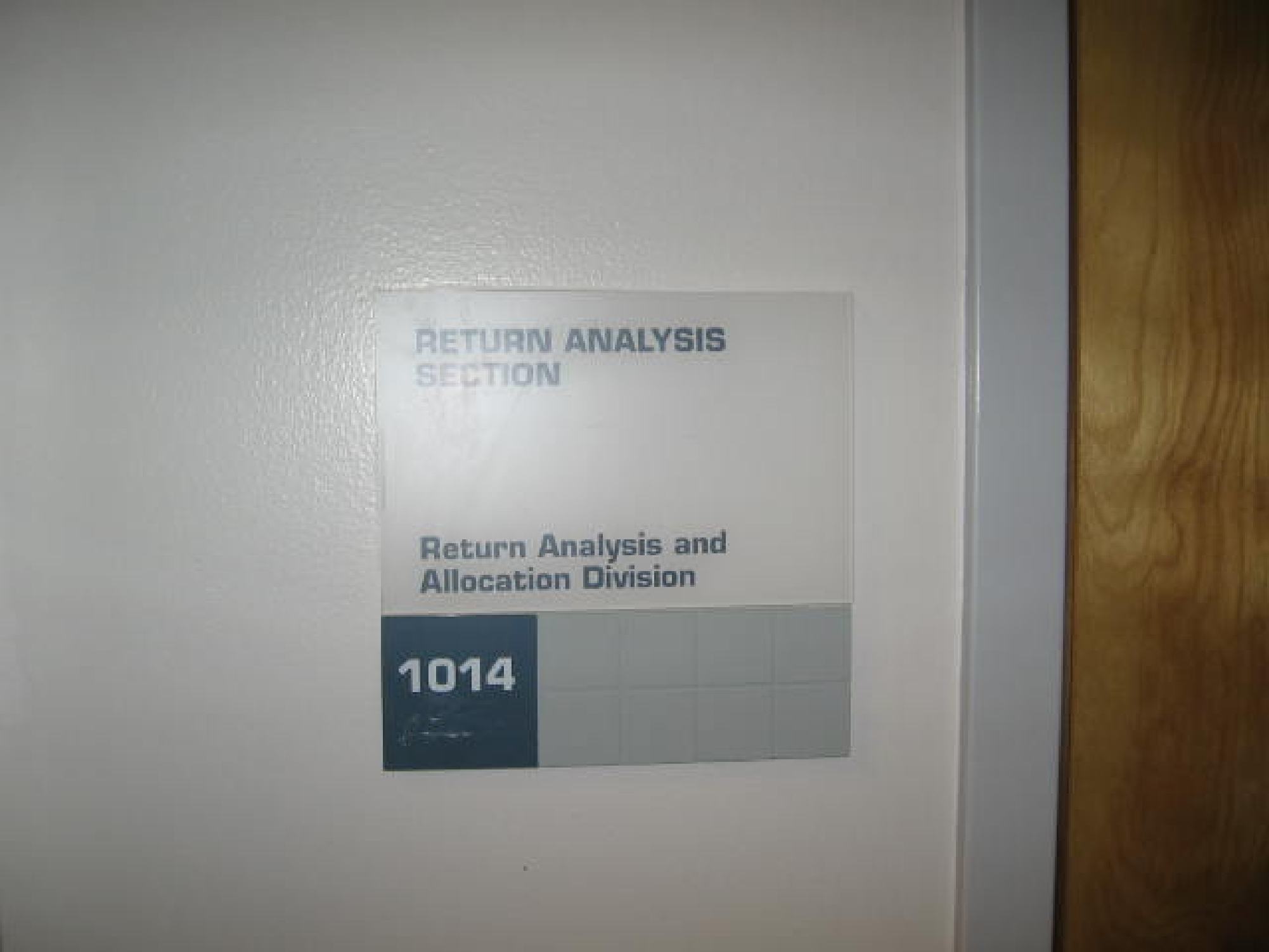
SECTION
Return Analysis and
Allocation Division
1014


BREAK
ROOM
1004


OUT
OF
ORDER

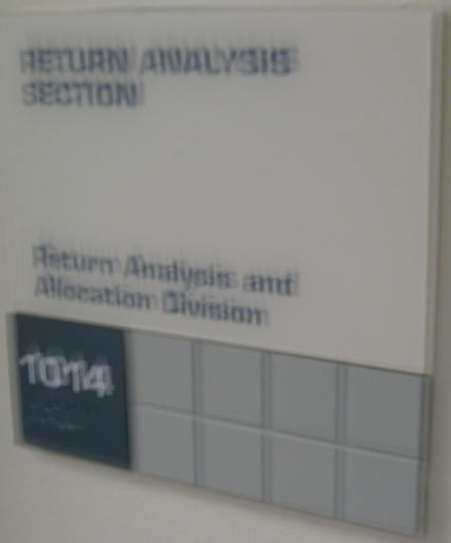

RETURN ANALYSIS
SECTION
Return Analysis and
Allocation Division
1014

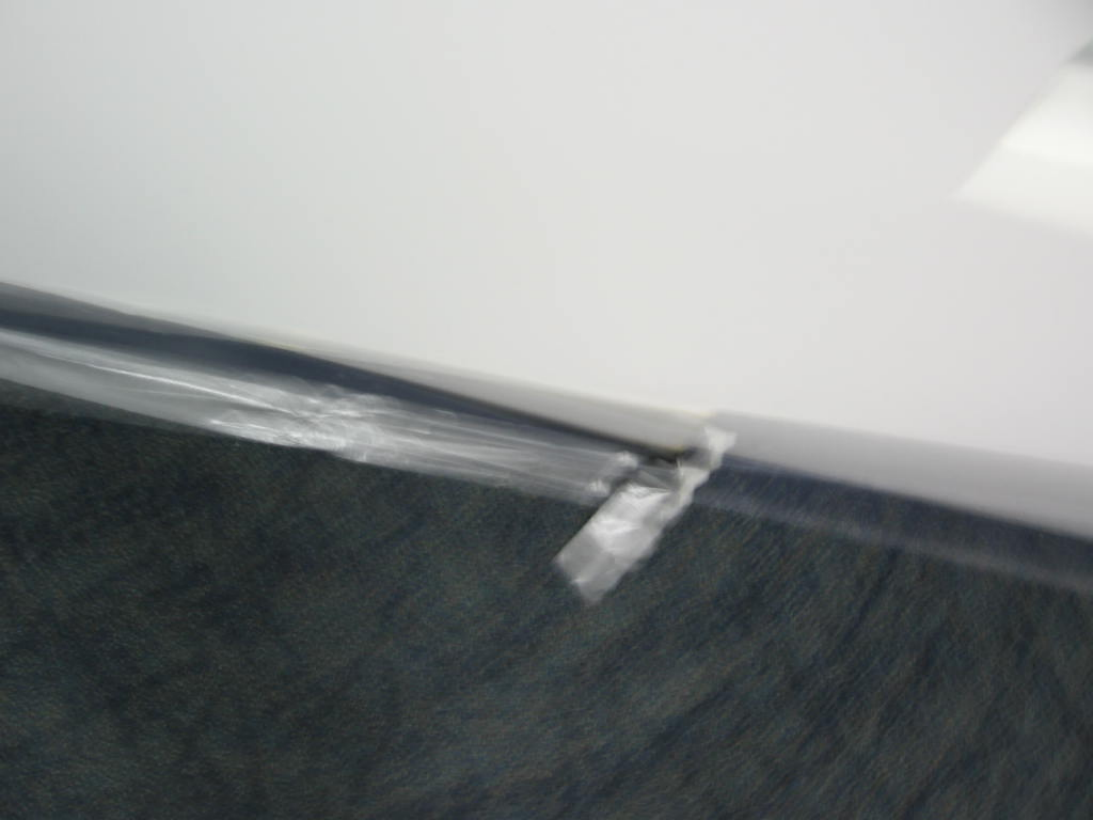

Break Room 1004
Temporarily Closed
The refrigerator has been unplugged, so
please remove all of your food items.
BREAK
ROOM
1004


RETURN ANALYSIS
SECTION
Return Analysis and
Allocation Division
1014


1003
IN USE
Dennis
Hayes


IN USE
Rhonda
Hayes


RETURN ANALYSIS
SECTION
Return Analysis and
Allocation Division
1014




DAVE HAYES
RESEARCH & STATISTICS SECTION
LEGISLATIVE & RESEARCH DIVISION
QUIET ROOM
1003
IN USE
Dennis Hayes